

**REMARKS**

Claims 1-11 are all the claims pending in the application, all claims rejected over prior art. Reconsideration of the application and allowance of all claims are respectfully requested.

The subject application relates to a re-configurable multiplexer, i.e., a multiplexer in which the number of channels can vary without altering the response of the remaining ones (see page 3, lines 21-22 of the description). According to the present application, the re-configurable multiplexer comprises N filters (see F1, F2 and F3 of Figure 4) and M filter heads (see FHD4 and FHD5 of Figure 4). While each filter has multiple cavities, each filter head has a single cavity, which is equal to (i.e. has the same structure of) the first cavity of the filters. Each filter head may be alternatively connected either to a covering plate or to a filter tail. When the filter head is connected to the covering plate, it acts as a short circuit. On the other hand, when the filter head is connected to the filter tail, it acts as a band-pass filter.

Therefore, when the re-configurable multiplexer is used for processing N channels, the M filter heads are all connected to respective covering plates. Therefore, only the N filters actually manipulate the channels, while the M filter heads simply act as reflective loads.

On the other hand, if a new channel is activated, the re-configurable multiplexer may be re-configured by replacing the covering plate connected to one of the M filter heads with a filter tail. In this way, the filter head connected to the filter tail forms a new filter (i.e., the  $(N+1)^{th}$  filter), which allows manipulation of the new channel. The response of the other N filters is unchanged thanks to the fact that the first cavity of the filter head has the same structure of the first cavity of the other N filters. Indeed, the filter head is mostly responsible for the

phase response in the out band (i.e., within the passing bands of the other filters), as disclosed on page 5, lines 27-28 of the specification.

In view of the above, the Examiner's attention is drawn to the following:

- a) *Sawday* fails to disclose a re-configurable multiplexer. Indeed, *Sawday* is completely silent about modifying the configuration of the arrangement shown in Figure 1 according to the number of channels to be processed.
- b) *Sawday* fails to disclose that the re-configurable multiplexer comprises at least one filter head, having only a single resonant cavity which is the same as the first resonant cavity of the filter.

Indeed, *Sawday* does not mention at all the possibility to provide filters with different numbers of cavities. On the contrary, *Sawday* implicitly suggests that all the filters comprised in the arrangement of Figure 1 are of a same type (i.e., they all comprise a same number of cavities), since they are schematically represented as rectangles having a same length. In other words, either all the filters of *Sawday* have multiple cavities (i.e., they all correspond to the "filter" of claim 1) or they all have a single cavity (i.e., they all correspond to the "filter head" of claim 1). No arrangement is disclosed which has both a filter with multiple cavities and a filter head with a single cavity.

Further, even assuming that the filter of *Sawday* implicitly discloses a filter head and a filter tail, *Sawday* does not mention at all that the filter head has a single cavity.

- c) *Sawday* fails to disclose that the at least one filter head is configured to be connectable either to a corresponding cover plate for short circuit purpose or to a filter tail in order to provide filter functionality.

Indeed, without prejudice to what has been stated immediately above, even assuming that *Sawday* discloses a filter head having a single cavity, *Sawday* is completely silent about the possibility to connect such a filter header either to a cover plate or a filter tail. On the contrary, each filter shown by *Sawday* is represented as integrally formed or, in other words, the filter head is permanently connected to the filter tail and therefore it is certainly not connectable to a cover plate.

In the remarks of the examiner at page 3 of the Office action in support of the rejection, the examiner points to filters 40, 56 and 58 as the claimed plurality of bandpass filters with at least one of the filters having multiple cavities, but the examiner then points to the same ***multiple cavity*** filter structure as satisfying the claim language requiring a ***single cavity*** filter head. It appears as though the examiner may be considering the first cavity of a multi-cavity filter to be both the first cavity of a filter as well as the only cavity of a single-cavity filter head. This is not a reasonable interpretation of the claim language. The language of claim 1 is describing a filter head having a resonant cavity identical to the first resonant cavity of one of the filters, it is not describing that the filter head and filter share the same physical cavity. Not only is this clear from the specification but it is also inconsistent with other claim language. Claim 1 requires that the filter head be capable of being connected to either a covering plate or a filter tail, but there is no such selective connection possible if the filter head is actually the first cavity of a multi-cavity filter and is permanently coupled only to the second cavity of the filter. Claim 4 requires that the filter head be an integral part of the manifold, while at the same time the filters are described as each being connected to a filter port.

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.116  
U.S. Application No.: 10/624,511

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The ability to selectively connect a filter head to either a cover plate or to a filter tail is what makes the multiplexer re-configurable. The *Sawday* structure is simply not a reconfigurable multiplexer, and the examiner's interpretation of the claim language does not make it so. Thus, the claimed invention is not taught by *Sawday*.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: February 13, 2008

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